Panasonic
ideas for life

P2HD

AJ-HPM110
Memory Card Portable Recorder/Player

AVC INTRA DVCPRO HD DVCPRO 50 DVCPRO DV

Beijing 2008

Official Worldwide
Olympic Partner

P2 HD Mobile Recorder for HD Production with Native 1080/24p Recording and 1080/24PsF Input/Output

The AJ-HPM110 P2 Mobile is a multi-purpose recorder that uses the P2 memory card to bring mobility and speed to news and program production, both on the desktop and in the studio. HD multi-formatting lets the AJ-HPM110 support conventional 1080i and 720p, as well as 1080/24PsF input/output and native 1080/24p* recording. This makes the AJ-HPM110 ideal for the high-end HD production of movies and commercials. The AJ-HPM110 also includes a host of editing functions, like the RS-422A remote function for producing P2 clips from an external VTR, and a playlist function for editing and copying clips to cards.

*Video is recorded to the P2 card in the 1080/23.98p format. For details on input signals and recording formats, see the table entitled "Input Signals and Corresponding Recording Formats" on page 4.

New Functions Now Offered on the AJ-HPM110
- 1080/24PsF input/output, native 1080/24p recording
- Creating New Clips From the Playlist (Editcopy function)
- Production of clips from external VTR sources via RS-422A remote
- Extracting active frames from Variable Frame Rate (VFR) signals (720/Xp over 59.94p or 60p)
- Loop Rec function

Reliable, Low-Cost P2 Card with 32 GB Capacity

The compact and light P2 card holds 32 GB* (AJ-P2C032RG) of data. The new AJ-HPM110 P2 Mobile records AV data as MXF files, which expedites and streamlines news gathering and program production. Because the P2 card has no moving mechanisms, it offers outstanding reliability and high resistance to impact, vibration and temperature fluctuations. Reusable many times, the P2 card can reduce operating costs and minimize environmental impact.

*Total card capacity includes space for data management such as system data; therefore, actual usable area is less than the capacity indicated on the card.

Six P2 Card Slots

With its six card slots, the AJ-HPM110 holds six 32 GB P2 cards for recording over 3 hours of DVCPRO HD, 8 hours of DVCPRO HD / AVC-Intra 100 720 24p native or 4 hours of AVC-Intra 100 1080 24p native content.   It will play a continuous, extended clip recorded in sequence onto six P2 cards. Or, you can mount five P2 cards recorded using a P2 cam, and output the playlist editing result to a sixth P2 card.

*For detailed recording times, see the table entitled "Input Signals and Corresponding Recording Formats" on page 4.

Optional Board for AVC-Intra Recording and Playback

The AJ-YBX200G codec board (purchased separately) adds AVC-Intra codec recording and playback capabilities to the AJ-HPM110. The AVC-Intra codec is based on the advanced motion image compression technology of the H.264 standard, which brings superb image quality, a highly-efficient encoding, and outstanding editing precision to broadcasting applications. The intra-frame compression system of this codec ensures stable quality for fast-motion images, degradation-free frame-by-frame editing, and fast processing with a multi-core CPU. The high-accuracy intra prediction process (see diagram below) and advanced, context-adaptive entropy coding technology combine to provide twice the intra-frame compression efficiency of MPEG-2.

High-Quality Images with AVC-Intra 100, Low Bit Rate with AVC-Intra 50

AVC-Intra 100 records high-quality, full-pixel, full-sampling HD images (1920 x 1080, 4:2:2, 10-bit) at the same bit rate as DVCPRO HD, while AVC-Intra 50 provides DVCPRO HD-level images (1440 x 1080, 4:2:0, 10-bit) at a low bit rate and low operating cost. The AJ-HPM110 can be set to either mode to meet a wide range of HD production needs.
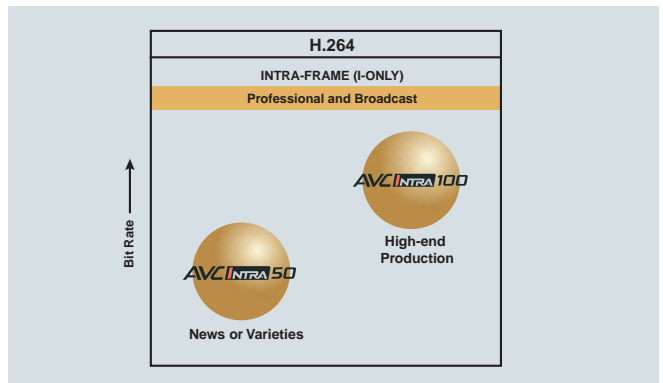
Endless Recording with Loop Rec

The loop rec function continuously records video data onto available memory card areas. When the card becomes full, older data is deleted to free up the recording area, resulting in loss-less, endless recording. When used with cameras for time-sensitive, information gathering like weather and news reporting, the loop rec function holds the latest video data for a predetermined time period.
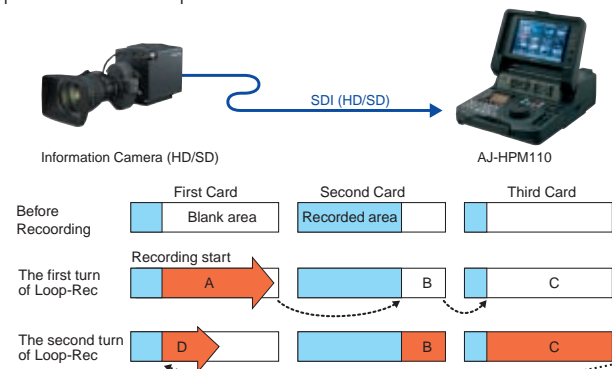
*Image data is recorded continuously in available areas (in the order A ➤ B ➤ C) of the P2 card. When the remaining recording time drops to 30 seconds, data in area A is deleted, and data is recorded in area C until it becomes full (0 seconds remaining), then data is recorded in area D.

Eight Channels of 16-bit Digital Audio

AVC-Intra and DVCPRO HD offer superb 16-bit linear PCM sound quality, with eight embedded channels for recording in 5.1-channel surround sound. The AJ-HPM110 P2 Mobile uses HD-SDI for independent input/output and editing of all eight channels. The SD mode supports four-channel recording and playback in all codec systems (DVCPRO 50, DVCPRO, DV).

•Sample Image of the Intra Prediction Process
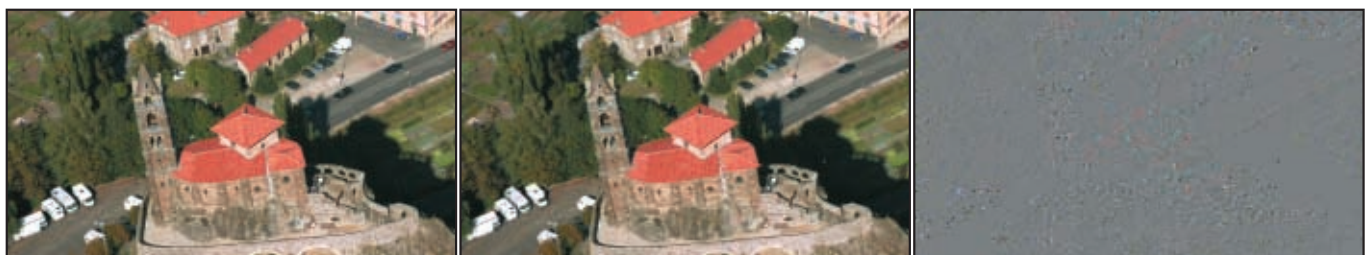
Left: Original image   Center: Intra-frame predictive image
Right: Difference image obtained from subtracting the intra-frame predictive image from the original image. This shows the high accuracy of intra prediction.

Native 24p Recording with 1080/24PsF

The AJ-HPM110 supports 1080/24p (30p/25p) recording and playback in both AVC-Intra 100 and AVC-Intra 50 modes. In HD-SDI mode, it supports 1080/24PsF input/output for use in high-end movie production. The AJ-HPM110 combines easy portability and convenient nonlinear acquisition in a 24p recorder.

HD/SD Multi-Format Compatibility

Supporting a wide range of HD formats, such as 1080p, 1080i and 720p, the AJ-HPM110 can be switched to 59.94 Hz or 50 Hz to adapt to the world's HD broadcasting formats. It also supports SD, and multi-codec recording (DVCPRO 50, DVCPRO, DV) is possible in both NTSC (480i) and PAL (576i).

Speed Effects with the VariCam/AG-HVX200

The AJ-HPM110 can extract active frames from VFR (variable frame rate) signals output by a VariCam and record them in 720/24p (30p/25p). The built-in monitor lets you check the VFR effect during playback.
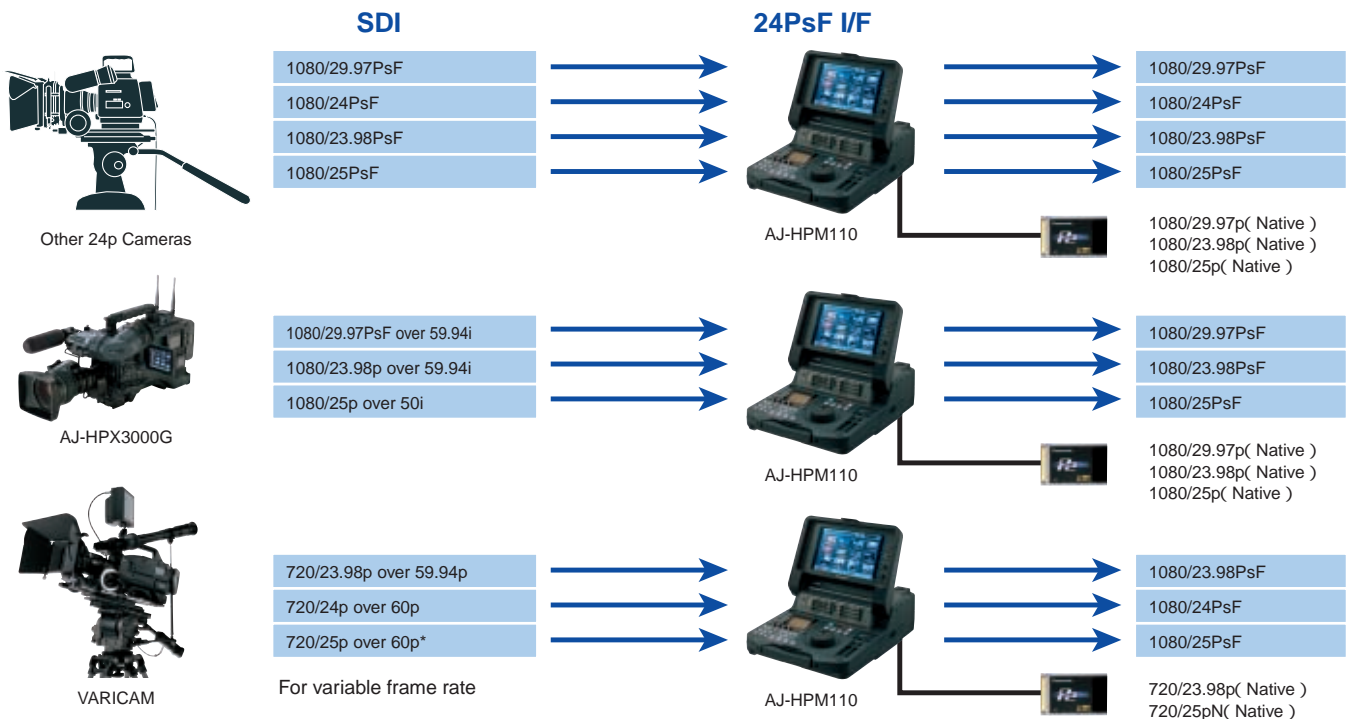The AJ-HPM110 can also provide VariCam-like 60p pull-down output (50p from 25p signals) by playing back a video clip in a P2 card recorded in native 720/24p (30p/25p) by a P2 camera-recorder.

Up-/Down-/Cross-Conversion

The AJ-HPM110 can convert up or down between HD and SD or cross-convert between 720p and 1080i during playback. Also featuring an aspect conversion function, the versatile AJ-HPM110 handles a wide range of video formats.

CORRESPONDENCE CHART OF 24P/25P/30P INPUT/OUTPUT

	SDI	24PsF I/F	
Other 24p Cameras	1080/29.97PsF	AJ-HPM110	1080/29.97PsF
	1080/24PsF		1080/24PsF
	1080/23.98PsF		1080/23.98PsF
	1080/25PsF		1080/25PsF
			1080/29.97p Native 1080/23.98p Native 1080/25p Native
AJ-HPX3000G	1080/29.97PsF over 59.94i	AJ-HPM110	1080/29.97PsF
	1080/23.98p over 59.94i		1080/23.98PsF
	1080/25p over 50i		1080/25PsF
			1080/29.97p Native 1080/23.98p Native 1080/25p Native
VARICAM	720/23.98p over 59.94p	AJ-HPM110	1080/23.98PsF
	720/24p over 60p		1080/24PsF
	720/25p over 60p*		1080/25PsF
	For variable frame rate		720/23.98p Native 720/25pN Native

*720/Xp(4p to 50p) over 60p can generate 720/25pN via AJ-HPM110.

Input Signals and Corresponding Recording Formats

Recording Codec	Input Signal	menu screen*1	Recording Format (P2 Card)	Recording Time AVC-Intra100	Recording Time AVC-Intra50	SDI Output*2	Analog Outpt*2	IEEE 1394 Output	Time Code Output
AVC-Intra 50/100 (With AJ-YBX200G AVC-Intra Codec Board)	1080/59.94i	59.94	1080/59.94i	192min.	384min.	1080/59.94i 720/59.94p 480/59.94i	1080/59.94i 720/59.94p 480/59.94i	–	yes
	1080/50i	50	1080/50i			1080/50i 720/50p 576/50i	1080/50i 720/50p 576/50i	–	yes
	1080/29.97PsF	29.97	1080/29.97p (Native)*6			1080/29.97PsF 720/29.97PsF over 59.94p 480/29.97PsF over 59.94i	1080/29.97PsF over 59.94i 720/29.97PsF over 59.94p 480/29.97PsF over 59.94i	–	–
	1080/23.98p over 59.94i*3	59-23	1080/23.98p (Native)*6	240min.	480min.	1080/23.98PsF	–	–	–
	1080/23.98PsF	23.98	1080/23.98p (Native)*6			1080/23.98PsF	–	–	–
	1080/24PsF	24	1080/23.98p (Native)*6			1080/24PsF	–	–	–
	1080/25PsF	25	1080/25p (Native)*6			1080/25PsF 720/25PsFover 50p 576/25PsF over 50i	1080/25PsF over 50i 720/25PsF over 50p 576/25PsF over 50i	–	–
	720/59.94p	59.94	720/59.94p	192min.	384min.	720/59.94p 1080/59.94i 480/59.94i	720/59.94p 1080/59.94i 480/59.94i	–	yes
	720/50p	50	720/50p			720/50p 1080/50i 576/50i	720/50P 1080/50i 576/50i	–	yes
	720/29.97p over 59.94p*4	29.97	720/29.97p (Native)*6	384min.	768min.	720/29.97p over 59.94p 1080/29.97PsF 480/29.97p over 59.94i	720/29.97p over 59.94p 1080/29.97p over 59.94i 480/29.97p over 59.94i	–	–
	720/23.98p over 59.94p*4	59-23	720/23.98p (Native)*6	480min.	960min.	1080/23.98PsF	–	–	–
	720/24p over 60p*4	60-24	720/23.98p (Native)*6			1080/24PsF	–	–	–
	720/25p over 50p*5	25	720/25p (Native)*6	384min.	768min.	720/25p over 50p 1080/25PsF 576/25p over 50i	720/25p over 50p 1080/25p over 50i 576/25p over 50i	–	–
	720/25p over 60p*4	60-25	720/25p (Native)*6			720/25p over 50p 1080/25PsF 576/25p over 50i	720/25p over 50p 1080/25p over 50i 576/25p over 50i	–	–

Recording Codec	Input Signal	menu screen*1	Recording Format (P2 Card)	Recording Time (With Six 32 GB P2 cards)	SDI Output*2	SDI Output*2	IEEE 1394 Output	Time Code Output
DVCPRO HD	1080/59.94i	59.94	1080/59.94i	192min.	1080/59.94i 720/59.94p 480/59.94i	1080/59.94i 720/59.94p 480/59.94i	1080/59.94i	yes
	1080/50i	50	1080/50i		1080/50i 720/50p 576/50i	1080/50i 720/50p 576/50i	1080/50i	yes
	1080/29.97PsF	59.94	1080/59.94i		1080/29.97PsF 720/29.97PsF over 59.94p 480/29.97PsF over 59.94i	1080/29.97PsF over 59.94i 720/29.97PsF over 59.94p 480/29.97PsF over 59.94i	1080/29.97PsF over 59.94i	yes
	1080/23.98p over 59.94i*3	59.94	1080/59.94i		1080/23.98PsF*7 1080/23.98p over 59.94i 720/23.98p over 59.94p 480/23.98p over 59.94i	– 1080/23.98p over 59.94i 720/23.98p over 59.94p 480/23.98p over 59.94i	– 1080/23.98p over 59.94i	– yes
	1080/23.98PsF	–	–	–	–	–	–	–
	1080/24PsF	–	–	–	–	–	–	–
	1080/25PsF	–	–	–	–	–	–	–
	720/59.94p	59.94	720/59.94p	192min.	720/59.94p 1080/59.94i 480/59.94i	720/59.94p 1080/59.94i 480/59.94i	720/59.94p	yes
	720/50p	50	720/50p		720/50p 1080/50i 576/50i	720/50p 1080/50i 576/50i	720/50p	yes
	720/29.97p over 59.94p*4	29.97	720/29.97p (Native)*6	384min.	720/29.97p over 59.94p 1080/29.97PsF 480/29.97p over 59.94i	720/29.97p over 59.94p 1080/29.97p over 59.94i 480/29.97p over 59.94i	–	–
	720/23.98p over 59.94p*4	59-23	720/23.98p (Native)*6	480min.	1080/23.98PsF	–	–	–
	720/24p over 60p*4	60-24	720/23.98p (Native)*6		1080/24PsF	–	–	–
	720/25p over 50p*5	25	720/25p (Native)*6	384min.	720/25p over 50p 1080/25PsF 576/25p over 50i	720/25p over 50p 1080/25p over 50i 576/25p over 50i	–	–
	720/25p over 60p*4	60-25	720/25p (Native)*6		720/25p over 50p 1080/25PsF 576/25p over 50i	720/25p over 50p 1080/25p over 50i 576/25p over 50i	–	–
DVCPRO50/ DVCPRO/ DV	480/59.94i	59.94	480/59.94i	384min. (DVCPRO 50) 768min. (DVCPRO/DV)	480/59.94i 1080/59.94i 720/59.94p	480/59.94i 1080/59.94i 720/59.94p	480/59.94i	yes
	480/29.97p over 59.94i	59.94	480/59.94i		480/29.97p over 59.94i 1080/29.97PsF 720/29.97p over 59.94p	480/29.97p over 59.94i 1080/29.97p over 59.94i 720/29.97p over 59.94p	480/29.97p over 59.94i	yes
	480/23.98p over 59.94i	59.94	480/59.94i		1080/23.98PsF*7 480/23.98p over 59.94i 1080/23.98p over 59.94i 720/23.98p over 59.94p	– 480/23.98p over 59.94i 1080/23.98p over 59.94i 720/23.98p over 59.94p	– 480/23.98p over 59.94i	– yes
	576/50i	50	576/50i		576/50i 1080/50i 720/50p	576/50i 1080/50i 720/50p	576/50i	yes
	576/25p over 50i	50	576/50i		576/25p over 50i 1080/25PsF 720/25p over 50p	576/25p over 50i 1080/25p over 50i 720/25p over 50p	576/25p over 50i	yes

*1: Settings must be made on the menu screen (system frequency mode). *2: Selection must be made on the menu screen. SDI output and analog output switch simultaneously.
*3: HD-SDI output signal (1080/23.98p over 59.94i) from AJ-HPX2000/HPX2100/HPX3000. *4: HD-SDI output signal (variable frame rate) from the AJ-HDC27 series.
*5: HD-SDI output signal (720/25p over 50p) from the AJ-HPX2100/HPX2000. *6: This mode records only effective frames. *7: Output is produced only when the playback system frequency is set to 23.98 or 59.94.

Clip Thumbnail Display on the 9-Inch Monitor

The AJ-HPM110's built-in 9-inch LCD monitor not only serves as a playback monitor, it also displays clips in a thumbnail list. You can select a clip and play it back immediately. Each thumbnail is indicated with a text memo and a symbol that shows the presence or absence of a shot marker. You can also set the AJ-HPM110 to display only the clips you select in the thumbnail list. The crosshair cursor buttons or jog dial let you select a thumbnail quickly and easily.

Clip Management

You can delete, copy or merge clips, or add a shot marker and text memo. Details of each clip can be viewed in a properties window.

Playlist Allows VTR-Like Nonlinear Editing

The P2 card enables a highly advanced playlist function. You can mark up to 100 events using In and Out points and play the events in any order. Thanks to the P2 card's unique high-speed random access capability, you get seamless, continuous, on-the-spot playback with no time lag or other disruptions between cuts

Display on the Monitor

(clips)**. Edit the recordings and use the results in on-air broadcasts — a quick, easy solution for breaking news reporting and similar "when it counts" tasks. You can mark In and Out points, cue, review, trim and perform other tasks in almost the same way as you would with a conventional editing controller. The display of playlist and event properties lets you handle production and correction tasks intuitively and accurately.

Concept Chart of Playlist Function
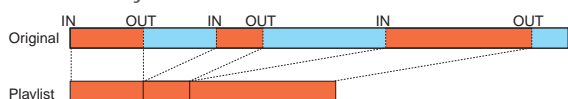
* No transition setting or effect is available. V fade between events can be set only for audio.
** The cuts (clips) should be the same format.

Overwrite (Insert) Editing with the Playlist

Source materials from another clip can be inserted into the playlist. This gives you the same result as insert editing with a VTR. The AJ-HPM110 lets you insert edit in three modes: video, audio and both.

Concept Chart of Insert Editing
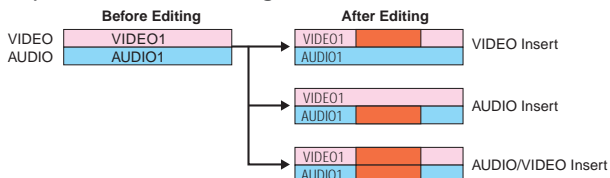
* Only video and audio from another clip on a P2 card mounted in the card slot of the same AJ-HPM110 can be inserted. Insert editing is not possible between two connected units.

Control Panel of the AJ-HPM110

Audio Split/Audio Dubbing with the Playlist

The AJ-HPM110's audio split* feature makes it possible, using the playlist, to move the audio In point forward or backward relative to the video In point. Also, one or two additional audio channels can be recorded onto a recorded clip. This lets you connect a microphone for voiceovers. The input audio can be mixed with the playback sound.

Concept Chart of Audio Split

* All channels are moved forward or backward at the same time. You cannot move a single channel independently.

Concept Chart of Voice Over
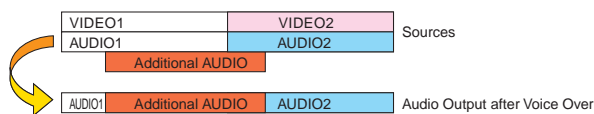
Creating New Clips From the Playlist (Editcopy function)

Playlists can be saved as files and reused. The edit/copy function can also write out the result of playlist playback as a separate clip. The AJ-HPM110 lets you edit and copy image data over multiple P2 cards for extended HD editing.

Jog/Shuttle Dial and Audio Fader

Like a broadcast editor, the AJ-HPM110 is equipped with a jog & shuttle dial. You can shuttle search at 100x normal speed in forward or reverse and jog search within a range of -1x to +1x speed. Audio can be monitored up to 10x speed. Equipped with large audio fader levers, the AJ-HPM110 also can be used as an audio mixer.

RS-422A Remote and Capture IN Function

The AJ-HPM110 is equipped with an RS-422A remote terminal to interface with a broadcasting VTR. Using an external controller, this lets you operate the AJ-HPM110 as an editor-player. The Capture IN function provides control over an external VTR from the AJ-HPM110 control panel for easy production of P2 clips from tape sources.

RS-422A A/B Roll Edit System
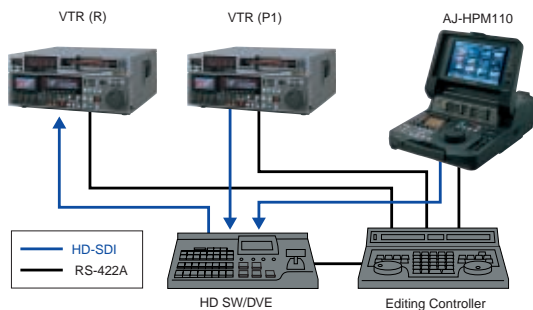
Capture IN function
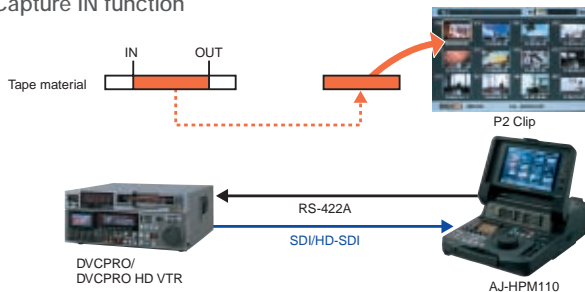
USB 2.0 Host Function
Allows Use of a Hard Disk Drive

The AJ-HPM110 is equipped with a USB 2.0 interface for host/device. In host mode, you can connect a hard disk drive and read and write P2 files. In device mode, you can connect a PC (or nonlinear editor) and use the AJ-HPM110 as a P2 card drive for direct transfer of P2 clips into nonlinear editing software.

HD/SD Serial Digital Interface

The AJ-HPM110 comes equipped with an SDI terminal, the standard interface in broadcasting systems. It also has HD-SDI input/output and SD-SDI input/output capabilities. This allows the AJ-HPM110 to handle a variety of operations such as line recordings, studio production and on-air broadcasting. The input system can be separately selected for video and audio with the Input Select key on the front panel.

Analog Input/Output

The AJ-HPM110 is equipped with various analog I/Os: Composite In, HD Component Out/Composite Out (shared), Composite Monitor Out, Audio In/Out (4 channels), and Audio Monitor Out (2 channels).

Menu Setting and User File

Using the crosshair cursor buttons or jog dial, it's easy to select menu items and make settings on the LCD monitor. A user file containing up to five groups of settings can be saved or loaded. You can assign frequently used menu items to the three PF keys, then select them instantly with the touch of a finger.

SD Card Slot

The AJ-HPM110 has an SD/SDHC card slot. By using the P2 viewer software, you can create a metadata upload file containing the names of the camera operator and reporter, the shooting location and other text information, and save it onto an SD/SDHC card. The AJ-HPM110 can then read the information as metadata.

IEEE 1394 Digital Interface

An IEEE 1394 digital interface comes standard on the AJ-HPM110. Connect a DVCPRO HD camera-recorder/VTR or Focus FireStore, and the AJ-HPM110 can input or output a DVCPRO-compressed stream with no image degradation. This lets you extend the AJ-HPM110's recording and backup capabilities.

Connecting with Focus FS-100

* Input/output is possible only when the system frequency mode is set to 59.94/50 Hz. Input/output is not possible in AVC-Intra mode.

Rugged Casing

With its rugged casing and magnesium die-cast frame, the AJ-HPM110 is tough enough for go-anywhere field production. The rear connector section is protected by a cover. With the editing panel closed, the AJ-HPM110 is the size of a large briefcase and comes equipped with a metal handle for easy carrying. You can take it onboard an airplane as a carry-on.

AC/DC

The versatile AJ-HPM110 runs on either 100 to 240-V AC or 12-V DC. Plug it in and you have an outstanding desktop recorder, or take the AJ-HPM110 outside and mount it in an OB van or carry it right into the field.

P2HD 5-year Warranty Repair Program

The P2HD five year warranty repair program further enhances the P2 card's outstanding reliability and durability, and helps to reduce running costs. Once you purchase the AJ-HPM110, simply visit Panasonic's Website and activate the five year warranty repair program.

*Please note that this program is not available in some countries and regions. The standard warranty period may vary depending on the country or region. Not all repair work is covered by this extended warranty.
The maximum warranty period may be adjusted depending on the hours of use. Details about user registration and the program: http://panasonic.biz/sav/pass_e
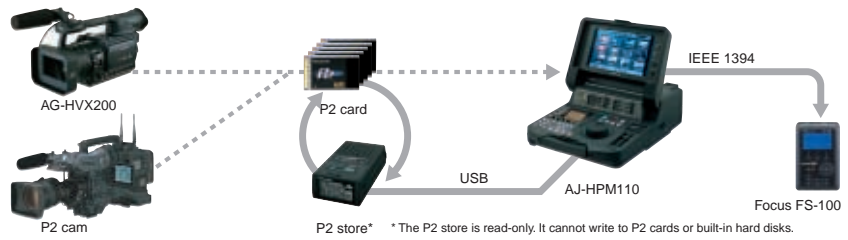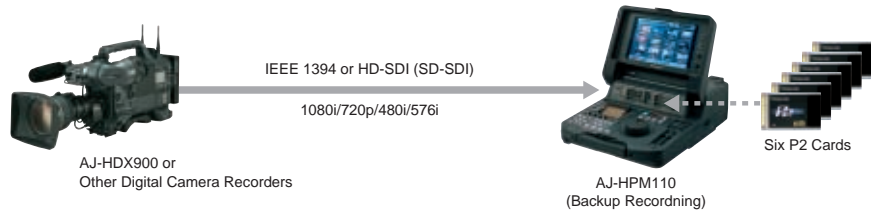

Side Connector Panel

Rear Connector Panel

FIELD RECORDING: As a Viewer and Editor

The P2 Mobile is an outstanding support tool for news gathering and other field operations using a shoulder-mounted DVCPRO P2 camcorder or the AG-HVX200. Use it for a variety of tasks -- monitoring recorded clips, on-site playlist production, editing, or producing backup copies on an external hard disk drive.
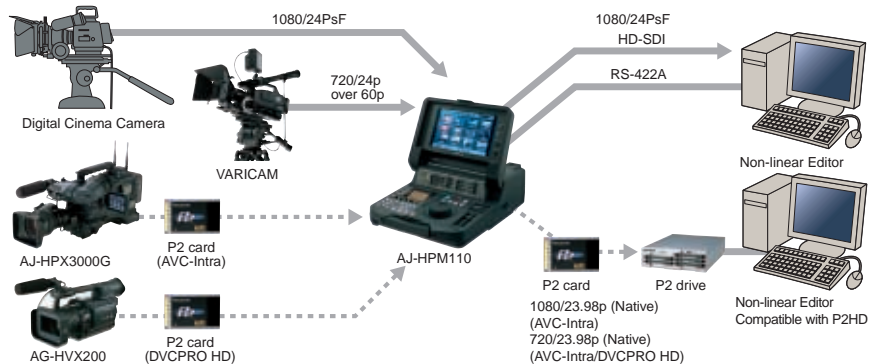
AG-HVX200

P2 cam

P2 card

P2 store*

USB

AJ-HPM110

IEEE 1394

Focus FS-100

* The P2 store is read-only. It cannot write to P2 cards or built-in hard disks.

FIELD ACQUISITION: As a Portable Recorder for Extended Backup Recording

The P2 Mobile is ideal for backup recording, with start/stop operation linked to the camera-recorder for both IEEE 1394 and HD-SDI connections.
Six P2 card slots extend recording time.

AJ-HDX900 or
Other Digital Camera Recorders

IEEE 1394 or HD-SDI (SD-SDI)

1080i/720p/480i/576i

AJ-HPM110
(Backup Recordning)

Six P2 Cards

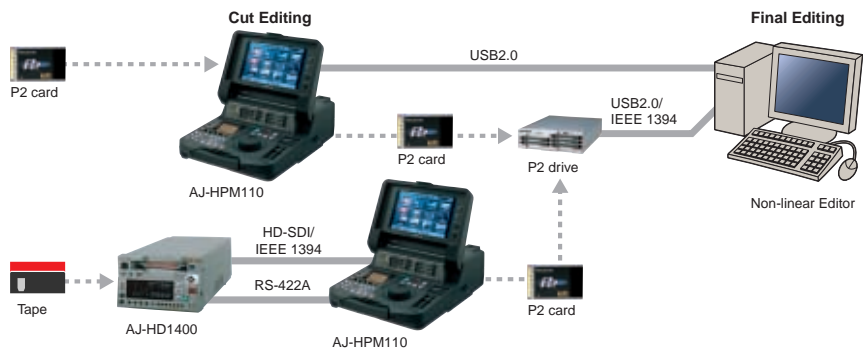## CINEMA-LIKE PRODUCTION: 1080/24p Recording from Digital Cinema Cameras

The AJ-HPM110 can record signals from a digital cinema camera via the 1080/24PsF interface in native 1080/24p format using the AVC-Intra 100 or AVC-Intra 50 codec. It can also input signals of 720/XP over 60p from a VariCam and record them in native 24p.
P2 cards containing 1080/24p recorded by the AJ-HPX3000G or AG-HVX200 P2 HD camera-recorder can be inserted into the AJ-HPM110 for direct transfer.
The versatility of the AJ-HPM110 responds to a wide range of cinema and cinema-like program production needs.

Digital Cinema Camera

1080/24PsF

1080/24PsF
HD-SDI
RS-422A

Non-linear Editor

VARICAM

720/24p
over 60p

AJ-HPX3000G

P2 card
(AVC-Intra)

AG-HVX200

P2 card
(DVCPRO HD)

AJ-HPM110

P2 card

P2 drive

1080/23.98p (Native)
(AVC-Intra)
720/23.98p (Native)
(AVC-Intra/DVCPRO HD)

Non-linear Editor
Compatible with P2HD

## IN EDITING STUDIOS: For Tape-and-Card Mixed Environments

With the playlist, cut editing can be performed using only the AJ-HPM110. When connected to a nonlinear editor via USB2.0, the AJ-HPM110 serves as a P2 drive.* The RS-422A terminal lets you control a VTR player, while the Capture IN function simplifies the production of P2 clips from tape sources. In these and other ways, the AJ-HPM110 adapts nicely to production environments where both tapes and cards are used.

* Installation of the P2 card driver (provided with each product) is required. The P2 card driver operates on Windows Vista, Windows XP, Windows 2000, and Mac OS X.

Cut Editing

P2 card

AJ-HPM110

USB2.0

Final Editing

USB2.0/
IEEE 1394

P2 card

P2 drive

Non-linear Editor

Tape

AJ-HD1400

HD-SDI/
IEEE 1394

RS-422A

AJ-HPM110

P2 card

OB VAN: Immediate Processing of Recordings

Compact, lightweight and versatile, the P2 Mobile lets you make effective use of the limited space in an OB van. Use it to make line recordings of HD(SD)-SDI input data, or for digital tape-to-card copying of DVCPRO HD data input via IEEE 1394. The P2 Mobile can combine the input content with a source recorded on a P2 card for relay broadcasts, and it expedites playlist transmission.

Sutdio Camera

HD SDI

On-Air

P2 cam

P2 card

AJ-HPM110

AJ-HDX900 etc,

Tape

AJ-HD1400

IEEE 1394
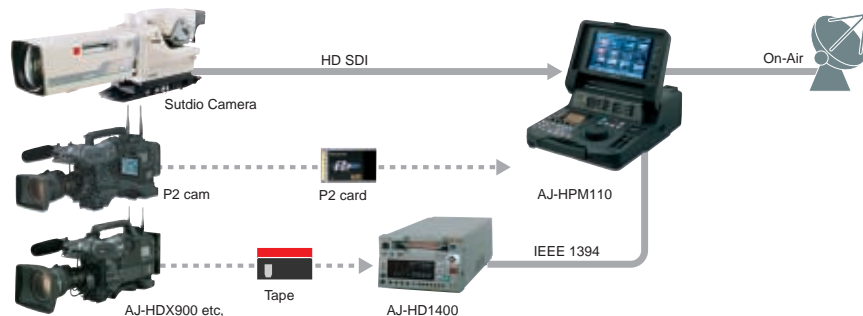
AJ-PC016RG / AJ-PC032RG
R-series Memory Card

Focus Enhancements, Inc. FireStore FS-100
Portable DTE Recorder

SD/SDHC Memory Card

AJ-YBX200G
AVC-Intra Codec Board

P2HD UTILITY SOFTWARE
You can download the following P2 Utility Softwrare at panasonic web site. <https://eww.pavc.panasonic.co.jp/pro-av/support/desk/e/download.htm>

Utility Software:
• P2 Store Manager
• Drive Mount Converter
• P2 Viewer
• P2 Contents Management Software
• P2 Card Format Station
• CAC File for P2 Camera-Recorder

AJ-HPM110 SPECIFICATIONS

General Specification

Power Source:	AC 100 V to 240 V, 50/60 Hz DC 12V/4.8A
Operating Temperature:	0°C to 40°C (32 °F to 104 °F)
Operating Humidity:	10% to 80% (no condensation)
Weight:	6.5 kg (14.4 lbs)
Dimensions (W x H x D):	301x 120 x 412mm (11-7/8″ x 4-3/4″ x 16-1/4″)
Recording Format:	AVC-Intra 100*/AVC-Intra 50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV switchable
Recording Video Signal:	1080/59.94i, 1080/23.98p*1, 1080/24p*1, 1080/29.97p*1, 1080/25p*1, 1080/50i, 720/59.94p, 720/50P, 480/59.94i, 576/50i
Audio Recording Format:	AVC-Intra100*1/AVC-Intra50*1/DVCPRO HD: 48kHz/16bits, 8CH DVCPRO 50: 48kHz/16bits, 4CH DVCPRO/DV: 48kHz/16bits, 2CH/4CH switchable
Recording Media:	P2 card

Recording/Playback Time*2: [AVC-Intra100*1 /DVCPRO HD]

	by single cards	using 6 card slot
AJ-P2C016RG	Approx. 16 min.	Approx. 96 min.
AJ-P2C032RG	Approx. 32 min.	Approx. 192 min.

Recording/Playback Time*2: [AVC-Intra 50*1/DVCPRO 50]

	by single cards	using 6 card slot
AJ-P2C016RG	Approx. 32 min.	Approx. 192 min.
AJ-P2C032RG	Approx. 64 min.	Approx. 384 min.

Recording/Playback Time*2: [DVCPRO/DV]

	by single cards	using 6 card slot
AJ-P2C016RG	Approx. 64 min.	Approx. 384 min.
AJ-P2C032RG	Approx. 128 min.	Approx. 768 min.

Digital Slow:	–1 to +1 times normal speed

*1: When using AVC-Intra Codec Card AJ-YAB200G
*2: * Time shown above is when you record a series of 1 shot to P2 card. Depending on numbers of shots you record, time will get shorter than the number shown above.

*4GB/8GB P2 Card can be used.

Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra 100/AVC-Intra 50/DVCPRO HD (59.94Hz/23.98Hz):Y:74.176MHz, PB/PR:37.088MHz (24Hz/25Hz/50Hz/60Hz): Y:74.25MHz, PB/PR:37.125MHz DVCPRO 50: Y:13.5MHz, PB/PR:6.75MHz DVCPRO: Y:13.5MHz, PB/PR:3.375MHz
Quantizing:	AVC-Intra 100/AVC-Intra 50: 10bits DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bits
Compression Format:	AVC-Intra 100/AVC-Intra 50: H 264/AVC Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO HD/DVCPRO 50/DVCPRO/DV: DV-Based Compression (SMPTE /314M)
Video Bit Rate:	AVC-Intra 100/DVCPRO HD: 100Mbps AVC-Intra 50/DVCPRO 50: 50Mbps DVCPRO: 25Mbps

Video Input Signal

Analog Composite Input:	BNC x 1, 1.0 Vp-p (75Ω)
Reference Input:	BNC x 2 (loop-through), Black Burst/HD tri-sync auto, 75Ω auto
SDI (HD/SD) Input:	BNC x 1, serial digital component HD: SMPTE 292M/296M/299M standard SD: SMPTE259M-C/272M-A standard ITU-R BT.656-4 standard

Video Output Signal

HD Component Output:	BNC x 3 (Y,PB,PR) Y: 1.0 Vp-p, 75Ω
Composite Output:	BNC x 3, (Video 1/Video 2/Video 3) 1.0 Vp-p, 75Ω
SDI (HD/SD) Output:	BNC x 1, serial digital component HD: SMPTE 292M/296M/299M standard SD: SMPTE259M-C/272M-A standard ITU-R BT.656-4 standard
Monitor Output:	BNC x 1

Video Output Adjustment Range

Output Gain:	– ∞ to + 3 dB or – ∞ to + 6 dB
Chroma Output Gain:	– ∞ to + 3 dB
Chroma Phase:	± 30°
Setup Level:	± 10%
Sink Phase:	± 15 μs
SC Phase:	± 180°

Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (sync video)
Quantizing:	16 bits
Frequency Response:	20 Hz to 20 kHz, ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, emphasis off, "A" weighted)
Distortion:	Less than 0.1% (1 kHz, emphasis off, reference level)
Cross Talk:	Less than –80 dB (1 kHz, between 2 channels)
Headroom:	20/18 dB switchable
De-emphasis:	T1=50 μsec, T2=15 μsec (on/off auto)

Audio Input Signal

Audio (Analog) Input:	XLR x 4 (CH1/CH2/CH3/CH4), 600Ω/high-impedance switchable, +4/0/–3/–20 dBu switchable LINE/MIC/MIC+48V switchable at CH2 MIC: –60 dBu, MIC+48V: Phantom +48V, –60dBu
SDI Input:	BNC x 1 HD: SMPTE 292M/296M/299M standard SD: SMPTE259M-C/272M-A standard ITU-R BT.656-4 standard

Audio Output Signal

Audio (Analog) Output:	XLR x 4 (CH1/CH2/CH3/CH4), low-impedance, +4/0/–3/–20 dBu switchable
SDI Output:	BNC x 1 HD: SMPTE 292M/296M/299M standard SD: SMPTE259M-C/272M-A standard ITU-R BT.656-4 standard
Monitor Output:	Pin jack x 2, –8dBV
Headphones:	Stereo mini jack, 8Ω, variable level

Other Input and Output

Time Code Input:	BNC x 1, 0.5 to 8.0 Vp-p, 10 kΩ
Time Code Output:	BNC x 1, low-impedance, 2.0±0.5 Vp-p
RS-422A Input:	D-sub 9-pin, RS-422A Interface
DVCPRO/DV:	6-pin x 1 400/200/100 Mbps switchable IEEE1394-1995 standard IEC61883-Part1, Part2 standard SMPTE 396M standard AV/C Command Set standard
USB2.0:	Host x 1, Device x 1

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

5 year warranty repair program is available for AJ-HPM110.
Please visit the website below to activate the program.
<http://panasonic.biz/sav/pass_e>

P2HD 5 Year Warranty Repair Program[*1]

Customers who register as users on the website will receive a extended warranty repair valid for up to five years.

	1st year	2nd year	3rd year	4th year	5th year[*5]
P2HD device[*2]	Basic warranty[*3]	Extended warranty repair[*4]			

*1: Please note that this extended warranty is not available in some countries/regions see web site below for details. *2: Not all models eligible for extended warranty coverage. *3: The basic warranty period may vary depending on the country/region see enclosed warranty for warranty coverage. *4: Not all repair work is covered by this extended warranty see enclosed warranty card for warranty coverage. *5: The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Purchase P2 product → Register online within 1 month → "Registration Notice" e-mail sent → **5 years of Warranty Repairs**

Make sure to save the "Registration Notice" e-mail during the warranty period.

Details about user registration and the extended warranty: **http://panasonic.biz/sav/pass_e**

Please refer to the latest Non-linear Compatibilty Information, P2 Support and Downlord and Service Information, etc. at panasonic web site.

https://eww.pavc.panasonic.co.jp/pro-av/index.html

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JQA-0443

ISO 14001 JACO · CERTIFICATION ORGANIZATION FOR ENVIRONMENT AND QUALITY · JAPAN AUDIT AND
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UKAS ENVIRONMENTAL MANAGEMENT
051

Factories of Systems Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)

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